

Date: Thursday, 7/13/2006 3:24:33 PM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : SADDLE FITTING, AFT (OUTBOARD/INBOARD)
 Job Number : 27889
 Estimate Number : 10533
 P.O. Number : N/A Part Number : D2573
 This Issue : 7/13/2006 S.O. No. : NA Drawing Number : D2573 REV E
 Prsht Rev. : NC Project Number : N/A
 First Issue : N/A Type : MACHINED PARTS Drawing Revision : E
 Previous Run : 27763 Material : N/A
 Written By : See comment below Due Date : 8/9/2006 Qty: 16 Um: Each
 Checked & Approved By : 06-07-13
 Comment : Est: 1 As Per RevE 06-01-27 JLM

Additional Product

Job Number:



Seq. #:

Machine Or Operation:

Description :

1.0

D6101007

7075-T7351 8.25X7.75X2.5



Comment: Qty.: 1.0000 Each(s)/Unit Total: 16.0000 Each(s)

7075-T7351 8.25X7.75X2.5

Make from D6101-007 billet for D2573

Ensure that grain is along 7.75" length

Batch No: B23941EP/J.G. 06/07/21

2.0

HAAS1

HAAS CNC VERTICAL MACHINING #1



Comment: HAAS CNC VERTICAL MACHINING #1

Program Batch No. 27889 Double check by: J.F.

1-Machine Step No 1 per Folio FA051 and inspect per attached Dimension Sheets 2-Machine Step No 2 per

Folio FA051 and inspect per attached Dimension Sheets

3-Machine Step No 3 per Folio FA051 and inspect per attached Dimension Sheets

4-Deburr and remove all machining marks

5-Tumble to remove sharp edges.

2/0J.G/EP06/07/29

3.0

MILLING CONV.

CONVENTIONAL MILLING MACHINE



Comment: CONVENTIONAL MILLING MACHINE

Machine keyway as per dwg D2573 & D2574

J.G/EP06/07/29

4.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

J.G/EP06/07/29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			
06-07-24	20	Saddle out of tolerance ① Flange is 0.107 nominal is 0.125 ② Bore is 1.970 nominal is 2.001 ^{+0.010} _{-0.000} SCRAP - see attached e-mail	per Q5f 042 06-07-24	SCRAP part DESTROY and replace	Ep 06/07/24	06-07-24	RH per Q5f 042 06-07-24	06-07-24

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☐ No ☒ DQA: ☒ Date: 06/08/09

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

Date: Thursday, 7/13/2006 3:24:34 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SADDLE FITTING, AFT (OUTBOARD/INBOARD)

Job Number: 27889

Part Number: D2573

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC8

SECOND CHECK



Comment: SECOND CHECK

ML 06/08/01

20

6.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

FL 06/08/01

(20)

7.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

CL.M 06-08-03

(20)

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location:

ST480

LB

06/08/04

(20)

10.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

D 06/08/09

(20)

Job Completion



U 06-08-08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

DART AEROSPACE LTD	Work Order:	27889
Description: Saddle, Aft Outboard	Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2573 Rev. E and record below:

				Recorded Actual Dimensions				By	Date
Dim	Min	Max	Go/No Go Gauge	1	2	3	4		
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.745	1.747	1.746	1.748		
C	3.495	3.505		3.492	3.499	3.500	3.497		
D	1.745	1.755		1.745	1.747	1.746	1.748		
E	7.990	8.010		8.001	8.004	8.002	8.003		
F	0.490	0.510		0.498	0.497	0.496	0.497		
G	0.257	0.262	DT8683	0.259	0.259	0.259	0.259		
H	0.375	0.380	DT8684	0.377	0.377	0.377	0.377		
I	0.490	0.510		0.497	0.499	0.501	0.497		
J	1.174	1.184		1.179	1.179	1.178	1.178		
K	0.558	0.578		0.565	0.564	0.565	0.559		
L	1.174	1.184		1.179	1.175	1.178	1.178		
M	1.365	1.375		1.366	1.370	1.366	1.368		
N	2.495	2.505		2.497	2.499	2.495	2.500		
O	4.119	4.129		4.120	4.119	4.120	4.120		
P	0.115	0.135		0.124	0.125	0.125	0.118		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.251	0.250	0.249	0.248		
S	0.115	0.135		0.125	0.121	0.124	0.127		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.280	3.280	3.280	3.280		
V	0.230	0.250		0.239	0.238	0.240	0.240		
W	0.115	0.135		0.123	0.122	0.125	0.129		
X	0.308	0.313		0.309	0.309	0.309	0.309		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.368	0.370	0.368	0.368		
AA	0.470	0.530		0.500	0.500	0.500	0.500		
AB	0.615	0.635		0.624	0.627	0.627	0.628		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.244	0.248	0.244	0.246		
AE	1.500	1.520		1.511	1.513	1.513	1.509		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.250	0.246	0.248	0.250		
AI	2.000	2.020		2.001	2.003	2.003	2.000		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	EPB
Date:	06/07/25

Audited by:	7m
Date:	06/07/27

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	

DART AEROSPACE LTD	Work Order:	27889
Description: Saddle, Aft Outboard	Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2573 Rev. E and record below:

Dim	Min	Max	Go/No Go Gauge	Recorded Actual Dimensions				By	Date
				1	2	3	4 ⁸		
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.747	1.747	1.749	1.748		
C	3.495	3.505		3.500	3.498	3.498	3.500		
D	1.745	1.755		1.747	1.747	1.749	1.748		
E	7.990	8.010		8.002	8.003	8.002	8.002		
F	0.490	0.510		0.493	0.494	0.496	0.496		
G	0.257	0.262	DT8683	0.259	0.259	0.259	0.257		
H	0.375	0.380	DT8684	0.377	0.377	0.377	0.377		
I	0.490	0.510		0.496	0.502	0.498	0.497		
J	1.174	1.184		1.178	1.177	1.179	1.179		
K	0.558	0.578		0.561	0.562	0.565	0.563		
L	1.174	1.184		1.178	1.177	1.179	1.179		
M	1.365	1.375		1.368	1.366	1.369	1.368		
N	2.495	2.505		2.497	2.498	2.497	2.499		
O	4.119	4.129		4.122	4.122	4.122	4.122		
P	0.115	0.135		0.125	0.123	0.126	0.124		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.253	0.250	0.253	0.252		
S	0.115	0.135		0.126	0.124	0.124	0.123		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.280	3.230	3.230	3.230		
V	0.230	0.250		0.239	0.240	0.238	0.237		
W	0.115	0.135		0.123	0.126	0.125	0.126		
X	0.308	0.313		0.309	0.309	0.309	0.309		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.365	0.369	0.369	0.365		
AA	0.470	0.530		0.500	0.500	0.500	0.500		
AB	0.615	0.635		0.628	0.627	0.626	0.626		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.247	0.245	0.244	0.248		
AE	1.500	1.520		1.513	1.510	1.514	1.514		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.250	0.249	0.250	0.247		
AI	2.000	2.020		2.003	2.000	2.003	2.003		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	EP
Date:	06/07/26

Audited by:	FM
Date:	06/07/27

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	

DART AEROSPACE LTD	Work Order:	27889
Description: Saddle, Aft Outboard	Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2573 Rev. E and record below:

				Recorded Actual Dimensions				By	Date
Dim	Min	Max	Go/No Go Gauge	1	2	3	4 ¹²		
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.747	1.745	1.745	1.747		
C	3.495	3.505		3.500	3.500	3.499	3.499		
D	1.745	1.755		1.747	1.745	1.745	1.747		
E	7.990	8.010		8.002	8.001	8.003	8.003		
F	0.490	0.510		0.495	0.500	0.495	0.498		
G	0.257	0.262	DT8683	0.255	0.259	0.255	0.259		
H	0.375	0.380	DT8684	0.377	0.374	0.377	0.377		
I	0.490	0.510		0.498	0.496	0.498	0.499		
J	1.174	1.184		1.177	1.175	1.177	1.178		
K	0.558	0.578		0.564	0.560	0.560	0.563		
L	1.174	1.184		1.179	1.175	1.177	1.178		
M	1.365	1.375		1.367	1.367	1.367	1.367		
N	2.495	2.505		2.498	2.496	2.497	2.495		
O	4.119	4.129		4.123	4.122	4.123	4.123		
P	0.115	0.135		0.125	0.124	0.125	0.123		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.252	0.252	0.253	0.250		
S	0.115	0.135		0.123	0.122	0.123	0.123		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.230	3.230	3.230	3.236		
V	0.230	0.250		0.242	0.238	0.237	0.236		
W	0.115	0.135		0.127	0.126	0.126	0.139		
X	0.308	0.313		0.309	0.308	0.310	0.308		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.369	0.365	0.365	0.363		
AA	0.470	0.530		0.500	0.500	0.500	0.500		
AB	0.615	0.635		0.628	0.626	0.628	0.626		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.245	0.246	0.244	0.244		
AE	1.500	1.520		1.511	1.513	1.514	1.512		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.254	0.249	0.246	0.247		
AI	2.000	2.020		2.001	2.002	2.003	2.002		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	Ch
Date:	06/07/23

Audited by:	JML
Date:	06/08/01

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	

DART AEROSPACE LTD		Work Order:	27889
Description: Saddle, Aft Outboard		Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1	

Inspect dimensions highlighted on inspection sheet drawing D2573 Rev. E and record below:

Dim	Min	Max	Go/No Go Gauge	Recorded Actual Dimensions				By	Date
				1	2	3	4 lb		
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.746	1.746	1.746	1.746		
C	3.495	3.505		3.501	3.499	3.498	3.497		
D	1.745	1.755		1.746	1.746	1.746	1.747		
E	7.990	8.010		8.004	8.002	8.001	8.000		
F	0.490	0.510		0.496	0.499	0.497	0.498		
G	0.257	0.262	DT8683	0.259	0.259	0.259	0.259		
H	0.375	0.380	DT8684	0.377	0.377	0.377	0.377		
I	0.490	0.510		0.499	0.500	0.500	0.499		
J	1.174	1.184		1.179	1.179	1.179	1.179		
K	0.558	0.578		0.564	0.561	0.569	0.568		
L	1.174	1.184		1.179	1.179	1.180	1.180		
M	1.365	1.375		1.369	1.368	1.367	1.369		
N	2.495	2.505		2.499	2.496	2.497	2.498		
O	4.119	4.129		4.123	4.123	4.122	4.123		
P	0.115	0.135		0.124	0.123	0.122	0.123		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.251	0.252	0.251	0.251		
S	0.115	0.135		0.121	0.121	0.120	0.121		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.230	3.230	3.230	3.230		
V	0.230	0.250		0.240	0.239	0.238	0.237		
W	0.115	0.135		0.125	0.125	0.124	0.124		
X	0.308	0.313		0.309	0.309	0.310	0.310		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.367	0.367	0.367	0.368		
AA	0.470	0.530		0.500	0.500	0.500	0.506		
AB	0.615	0.635		0.626	0.625	0.624	0.625		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.245	0.246	0.245	0.249		
AE	1.500	1.520		1.512	1.512	1.513	1.513		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.266		
AH	0.240	0.260		0.247	0.256	0.250	0.250		
AI	2.000	2.020		2.002	2.001	2.002	2.002		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	En/S.G
Date:	06/07/09

Audited by:	TML
Date:	06/08/01

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
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Description: Saddle, Aft Outboard	Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1

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D	1.745	1.755		1.747	1.746	1.747	1.746		
E	7.990	8.010		8.001	8.003	8.000	8.001		
F	0.490	0.510		0.499	0.498	0.497	0.499		
G	0.257	0.262	DT8683	0.259	0.259	0.259	0.259		
H	0.375	0.380	DT8684	0.374	0.374	0.374	0.374		
I	0.490	0.510		0.500	0.498	0.497	0.499		
J	1.174	1.184		1.179	1.180	1.179	1.178		
K	0.558	0.578		0.568	0.567	0.568	0.567		
L	1.174	1.184		1.179	1.180	1.179	1.178		
M	1.365	1.375		1.374	1.372	1.374	1.372		
N	2.495	2.505		2.500	2.499	2.499	2.498		
O	4.119	4.129		4.122	4.123	4.123	4.122		
P	0.115	0.135		0.125	0.127	0.128	0.127		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.251	0.250	0.252	0.251		
S	0.115	0.135		0.120	0.122	0.123	0.124		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.230	3.230	3.230	3.230		
V	0.230	0.250		0.239	0.238	0.237	0.236		
W	0.115	0.135		0.126	0.127	0.128	0.127		
X	0.308	0.313		0.310	0.310	0.310	0.310		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.364	0.364	0.362	0.364		
AA	0.470	0.530		0.500	0.500	0.500	0.500		
AB	0.615	0.635		0.624	0.624	0.628	0.627		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.245	0.246	0.245	0.246		
AE	1.500	1.520		1.513	1.513	1.512	1.513		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.251	0.249	0.248	0.247		
AI	2.000	2.020		2.003	2.002	2.001	2.000		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

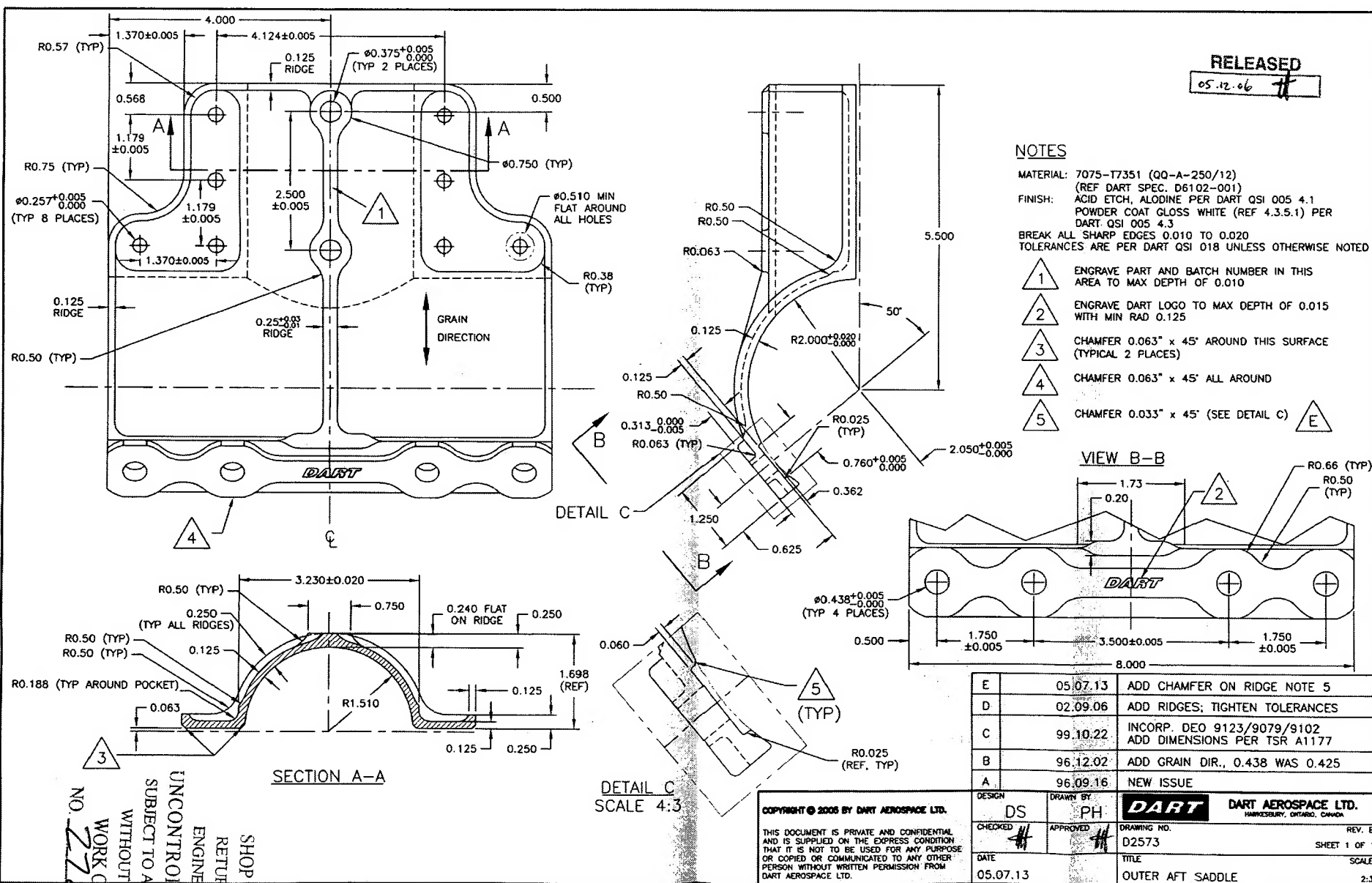
Measured by:	J. G
Date:	06/07/30

Audited by:	J. G
Date:	06/08/01

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	

RELEASED

05.12.06 #



Peter Hum

From: David Shepherd [dshepherd@dartaero.com]
Sent: July 24, 2006 12:18 PM
To: 'Peter Hum'
Subject: RE: d2573 B27889 saddle out of tolerance

I agree. Better to scrap both of these parts.

David

From: Peter Hum [mailto:phum@dartaero.com]
Sent: Monday, July 24, 2006 9:20 AM
To: 'David Shepherd'
Subject: d2573 B27889 saddle out of tolerance

David,

I have D2573 saddle out of tolerance in 2 locations.

The dimensions out of tolerance are the bore for the skidtube:

Nominal dim 2.000 (+0.010,-0.000) the measured dim is 1.990

And the thickness of the flanges:

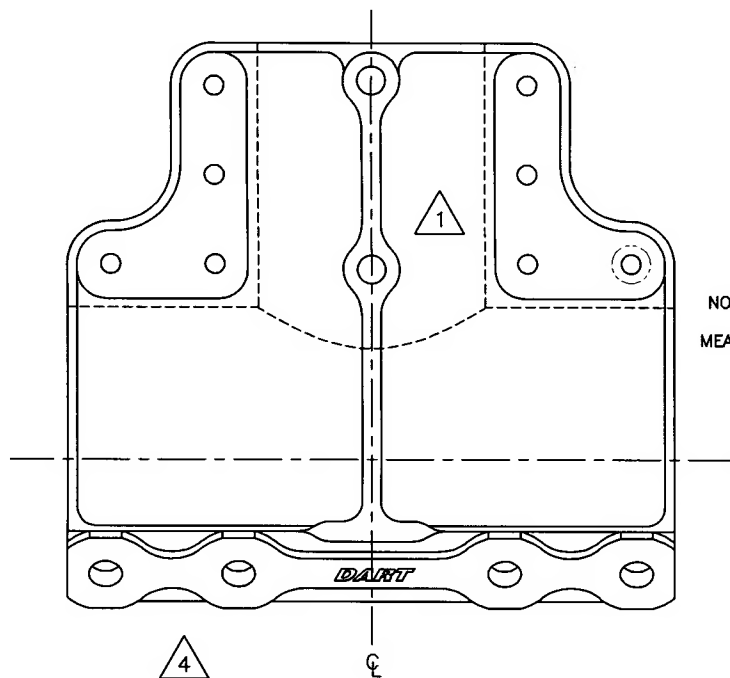
Nominal dim 0.125 the measured dim is 0.107

I've attached a sketch to show these dimensions

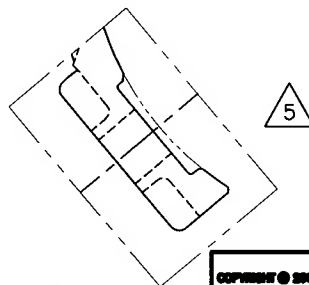
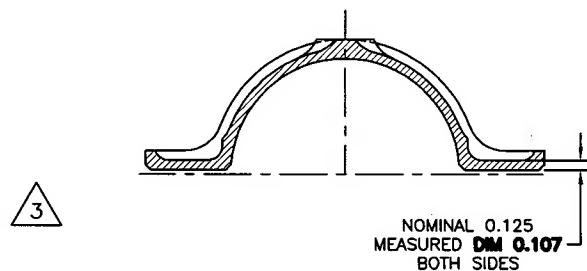
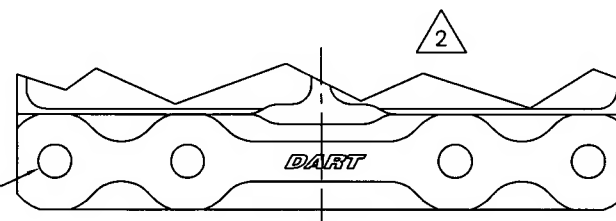
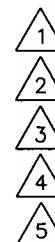
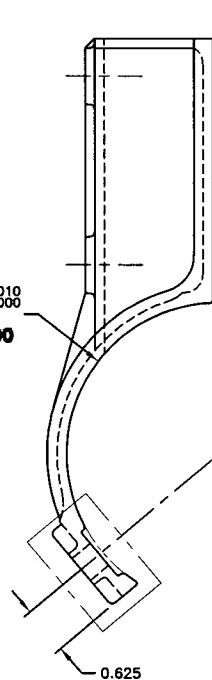
I believe this part is scrap because the saddle will have a hard time fitting the skidtube and the bearing load of the flanges has been reduced.

What should we do with this part?

Peter <<...>>



NOMINAL $R2.000^{+0.010}_{-0.000}$
MEASURED DIM **1.990**



E	05.07.13	ADD CHAMFER ON RIDGE NOTE 5
D	02.09.06	ADD RIDGES; TIGHTEN TOLERANCES
C	99.10.22	INCP. DEO 9123/9079/9102 ADD DIMENSIONS PER TSR A1177
B	96.12.02	ADD GRAIN DIR., 0.438 WAS 0.425
A	96.09.16	NEW ISSUE
DESIGN	DRAWN BY	DART DART AEROSPACE LTD. HAMILTON, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D2573
DATE	TITLE	SCALE
05.07.13	OUTER AFT SADDLE	2:3

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REV. E
SHEET 1 OF 1